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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,337	10/30/2003	Peter Tiemann	2002P18376US	7497

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SIEMENS CORPORATION
INTELLECTUAL PROPERTY DEPT.
170 WOOD AVENUE SOUTH
ISELIN, NJ 08830

EXAMINER

FREAY, CHARLES GRANT

ART UNIT	PAPER NUMBER
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3746

MAIL DATE	DELIVERY MODE
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06/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/697,337

Applicant(s)

TIEMANN, PETER

Examiner

Charles G. Freay

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the ends of the channels walls being supported by ribs (claim 20) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

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Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: COOLING AIR AND INJECTED LIQUID SYSTEM FOR GAS TURBINE BLADES.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4, 9, 10, 11, 15 and 20 recite limitations for which there is insufficient antecedent basis for this limitation in the claim as detailed below:

In claims 4 and 15 there is no antecedent basis for "the torque-proof internal channel wall".

In claim 9 there is no antecedent basis for "the radially external end", "the stator of the turbine" or for "the radially internal end".

In claims 10 and 20 there is no antecedent basis for "the internal wall" or "the external channel wall"

In claim 11 there is no antecedent basis for "the nozzle" or for "the stator side".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-7, 12-14, 16, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al (USPN 4,338,780) in view of Klingels (USPN 6,612,114).

Sakamoto et al discloses a gas turbine engine having a rotor with a compressor (12), a turbine (16), and a combustor (14). Cooling air is bled from near (21) the exit end of the compressor. There is a channel (22) between the rotor and the turbine which includes a nozzle (20) for injecting water into the cooling air. The air and water then travel through the rotor and blades to cool these elements (see passages 35 and 34). The annular channel (22) has an external torque proof wall (37) which faces the combustion chamber. Sakamoto et al do not disclose that the coolant is used to cool the blades and the vanes, the external wall being insulated, or that the water is distilled. Klingels discloses a gas turbine cooling arrangement having a coolant is used to cool both the vanes and the blades of the turbine (see the dash and double dot lines in Fig. 1). At the time of the invention it would have been obvious to one of ordinary skill in the art to divert the cooling air path of Sakamoto et al to both the vanes and the blades

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so that cooling of all the components in the hot region of the turbine were cooled and damage prevented.

The examiner notes that in claims 1 and 12 the language setting forth that the coolant is "for cooling the blades and vanes" and the language that the "liquid is adapted to be introduced for cooling" are statements of desired results of what the coolant/liquid will do and these limitations do not set forth any specific structural limitations.

With regards to claim 3 the examiner notes that it would have been obvious to one of ordinary skill in the art to provide the correct heat transfer and insulating specifics to the external wall of the channel in dependence upon the spacing to the combustion chamber and the temperatures reached and generated by the combustor.

With regards to the limitation of distilled water, the examiner gives official notice that it is common to use distilled water in a turbine cooling arrangement and that it would have been obvious to do so to prevent deposits and other damage to the turbine components.

Claims 4, 8-10, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al in view of Klingels as applied to claims 1 and 12 above, and further in view of Lenahan et al (4,416,111).

As set forth above Sakamoto et al in view of Klingels discloses the invention substantially as claimed but does not disclose that the channel has internal and external walls, ribs supporting the walls or a diffuser rib. Lenahan et al disclose a diffuser (24)

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and an annular channel (30) defined by an internal wall and an external wall and supported by ribs (the walls perpendicular to the axis in Fig. 1). At the time of the invention it would have been obvious to one of ordinary skill in the art to provide a diffuser and an annular chamber as disclosed by Lenahan et al in order to provide a mechanism for providing the correct pressure to the combustor while also collecting the cooling air for the turbine.

Allowable Subject Matter

Claim 11 is would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

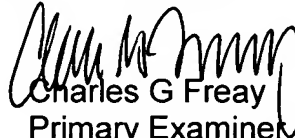
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reigel et al, Fukue et al, Kydd, and Kosinski et al disclose turbine blade and vane cooling arrangements.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles G. Freay whose telephone number is 571-272-4827. The examiner can normally be reached on Monday through Friday 8:30 A.M. to 5:30 P.M..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Stashick can be reached on 571-272-4561. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Charles G Freay
Primary Examiner
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CGF
June 6, 2007